



Investigating the Mediating Role of Distress Tolerance in the Relationship between Early Maladaptive Schemas and Psychiatric Symptoms among Addicts

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Abstract

Background: This study aimed to determine the mediating role of distress tolerance in the relationship between early maladaptive schemas and psychiatric symptoms among addicts.

Methods: The statistical population of this study consists of addicts referring to addiction treatment clinics in Zanjan city, Iran. Using the multi-stage cluster sampling method, 150 participants were selected as a sample and completed the questionnaires. Early maladaptive schema questionnaire-short form, symptom checklist-25 (SCL-25), and the distress tolerance scale were completed by participants.

Results: The findings of this study indicate a negative and significant relationship between early maladaptive schemas and distress tolerance among addicts. Also, there is a positive and significant relationship between early maladaptive schemas and psychiatric symptoms among addicts. It can be said that there is a significant negative relationship between distress tolerance and psychiatric symptoms in addicts.

Conclusions: The final results of this study show that in the relationship between early maladaptive schemas and psychiatric symptoms among addicts in Zanjan city, distress tolerance plays a mediating role and the model has a goodness of fit.

Keywords: Distress tolerance, Early maladaptive schemas, Psychiatric symptoms, Addicts.

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drugs just out of curiosity, or to improve athletic performance, or to reduce stress and get rid of unpleasant feelings.⁴

It seems that special background and talent in using drugs play a decisive role in the tendency and dependence of the person to addiction.⁴ As the studies show, the background of the person, like their personality traits, as well as their beliefs about themselves that make up their mental frameworks, are significantly different from healthy people.⁵ These mental frameworks, or forms, from which we look beyond the outside world, are called schemas. Schemas are deep and pervasive patterns or themes that are composed of memories, emotions, cognitions, and bodily feelings. They are usually formed in childhood and adolescence, continue throughout life, and are highly dysfunctional so that we call them early maladaptive schemas (EMSs).⁶ EMSs are self-destructive emotional and cognitive patterns that are embedded in the mind at the beginning of development and are repeated throughout life.⁵ Various clinical and experimental studies show that substance abuse is one of the coping strategies that a person uses to avoid the negative impact of aroused EMSs. The research results show people with substance abuse are more prone to EMSs.⁷ When EMSs are activated, levels of emotion are released and this directly or indirectly leads to problems such as inability to work, substance abuse, interpersonal conflicts, and various forms of psychological disorders such as depression, and anxiety.⁸

The theory of addiction readiness has identified psychological disorders as one of the most important factors in determining drug addiction. This theory holds that some people are prone to addiction and if exposed to it, they are more likely to become addicted.⁹ This theory states that there are many determinants of drug addiction, but among the determinants of drug addiction, psychological and psychiatric symptoms are considered as one of the most important factors as studies show about 90% of drug addicts have psychiatric symptoms.¹⁰

Psychiatric symptoms refer to a set of self-reported or observed signs and symptoms in appearance, behavior, motor activity, speech, mood, emotion, thinking, perception, cognition, insight, and judgment of clients based on DSM5.¹¹ There is a link between psychiatric symptoms and addiction as the studies indicates.¹² Another study found that in patients with substance abuse, the prevalence of psychiatric disorders, the extent and severity of symptoms of mental disorders in the

Introduction

Addiction is a global problem that affects every country or region. The issue of drug addiction is one of the most important issues in the study of public health. Drug dependence has led to a decrease in productivity of community members and takes people away from their social norms and it targets the public health of society.¹ Furthermore, Iran due to its geographical location and proximity to the largest opiates manufacturing center and exposure to the transit of drugs from Afghanistan to other countries of the world receives an unequal share of drug damages. The costs of drug use by the public and the blockage of the borders by the government are very high.²

Clinical findings indicate that various factors are important in the formation of drug dependence, including personality traits, lifestyle, social relationships, attitudes, beliefs, feelings, attachments, emotions, and behaviors that are formed during a person's development.³ Some people also become addicted to

areas of phobias, anxiety, physical complaints, psychosis, depression, paranoid thoughts, aggression and sensitivity in interactions, and obsessive-compulsive disorder (OCD) of addicts have been significantly higher than non-addicted people.¹³ Also in the study of people at risk of mental disorder, the concept of distress tolerance has been given much attention.¹⁴

Distress tolerance is another variable that seems to be effective in a person's tendency to addiction so that it can be said that low distress tolerance and intolerance of emotional and physical feelings can be the cause of addiction in a person and an important explanatory mechanism has been considered in the continuation of substance use.¹⁴ Simmons defines distress tolerance as the ability to experience and tolerate negative emotions.¹⁵ The main characteristic of emotional regulation of people with low distress tolerance is that they consider the existence of emotion unbearable, do not accept it, and feel ashamed and confused about the existence of emotion because they underestimate their ability to cope with emotions and finally, they make great efforts to prevent negative emotions and relieve them immediately. Feelings of inefficiency in the face of negative emotions lead to functional inefficiencies and seek accessible and rapid coping strategies such as alcohol and other substances that result in rapid relief from negative emotions. This strategy is especially suitable for those who tolerate low turbulence.¹⁶

Research shows that schemas are associated with distress tolerance. The results of Rajabi, Nezami Pakdehi (2015) showed that there is a negative and significant relationship between early maladaptive schemas and distress tolerance.¹⁷ Also, early maladaptive schemas can predict low distress tolerance in students, so it can be said that people with high scores of EMSs have a lower distress tolerance. Due to the importance of research on addiction, especially in Iran, and the fact that addicted people experience various injuries, including psychiatric symptoms, and some studies that show that psychiatric symptoms are associated with distress tolerance¹⁸ and on the other hand, EMSs are associated with disturbance tolerance.¹⁹ Also, EMSs are associated with psychiatric symptoms²⁰ however, no study was found to study mediate the role of distress tolerance in the relationship between EMSs and psychiatric symptoms among addicts in Zanjan.

The current study aims to explore the relationship between EMSs and psychiatric symptoms with the mediating role of distress tolerance. More specifically, the study sought to examine the following research hypothesis. 1. EMSs are significantly related to distress tolerance. 2. EMSs are significantly related to the psychiatric symptoms. 3. Distress tolerance is significantly related to psychiatric symptoms, and 4. Distress tolerance significantly mediates the relationship between EMSs and psychiatric symptoms.

Materials and Methods

The present study is a cross-sectional one and the population of this study included all addicts in Zanjan who had been referred to addiction treatment clinics. The sampling method of this research is multi-stage cluster type so that

among the three areas of Zanjan, which has 60 addiction treatment centers, one of the areas (region 3) was randomly selected and in next, from among the addiction treatment clinics in this area, three clinics were randomly selected and all patients referred to these three clinics during this period (about 150 people) were studied.

The short-form of the Young EMSs questionnaire (YSQ – SF): Young EMSs questionnaire is constructed based on clinical experts' experimental evidence. This self-reported questionnaire contains 205 items designed to measure 16 EMSs. The short form of this questionnaire (YSQ – SF) is constructed by Young (1998) to measure 15 schemes contains 75 items with Likert scale (1=totally false about me, 6=totally true about me). The high score in a given subscale result in more probability of a maladaptive schema in a person (1=totally false about me, 6=totally true about me). The young's schema short-form questionnaire contains 15 EMSs within five areas with five questions being utilized for each schema. The schema's areas are disconnection and rejection, impaired autonomy and performance, other-directedness, over vigilance, and inhibition and impaired limits. Waller, Meyer, and Ohanian (2001) have reported internal consistency of scale in 0.96. Also, the internal consistencies of all subscales were higher than 0.80 percent.²¹ The test-retest reliability of subscales was 0.5 to 0.82. Sadughi and Agilar (2008) have reported consistency of subscales between 0.62 and 0.90 with a total score 0.94.²² In another study by Divandari, Ahi, Akbari and Mahdian (2009), test-retest and Cronbach's alpha were assessed which indicated sufficient reliability.²³

Scl25 psychiatric symptoms questionnaire: Symptom Checklist-25 (SCL-25) is a brief form of SCL-90 with 25 questions in a Likert 0-4 included never (0), a few (1), somewhat (2), great (3), and very great or severe.⁴ The scale covers eight subscales including somatization, obsession-compulsion disorders (OCD), interpersonal sensitivity, phobia, depression, anxiety, paranoid ideation, and psychoticism. Raw scores were calculated by dividing the sum of scores for each subscale by the number of items. Also, the global severity index (GSI) was used to measure the extent or depth of the individual's mental health problems; by dividing the sum of scores of all questions by the number of questions. We used the Iranian version of SCL-25 that has suitable validity (Cronbach's alpha 0.97) and reliability (re-test coefficients 0.78).²⁴

The distress tolerance scale (DTS): This scale is a 15-item self-report measure that assesses an individual's perceived ability to tolerate negative emotional states.¹⁵ Items on the DTS are rated on a 5-point Likert scale with lower scores reflecting lower levels of distress tolerance. The DTS possesses good psychometric properties, including convergence with other self-report measures of emotional distress as well as adequate 6-month test-retest reliability and good internal consistency.¹⁵ Confirmatory factor analysis of the DTS indicates a higher-order general distress tolerance factor and four lower-order factors of tolerance (e.g., "feeling distressed and upset in unbearable to me"); appraisal (e.g., "my feelings of distress or upset are not acceptable"); absorption (e.g., "when I feel distressed or upset, all I can think about is how bad I feel"); and regulation (e.g., "I'll do anything to avoid feeling distressed or

upset”).¹⁵ This factor structure was recently replicated in a confirmatory factor analysis of the DTS in a sample of daily smokers.²⁵ In Azizi,²⁶ and Ismaili Nasab²⁷ Cronbach's alpha, the total scale was 86%. Also, the alpha coefficient of this scale in the above study was 73%.

Results

Table 1 describes the descriptive statistics of the study, which examines the demographic information of the variables of the research, including age, marital status, educational status, employment status, residence status, and type of material used.

In Kolmogorov – Smirnov test, if the significance level for all independent and dependent variables is greater than the test level (0.05), the data distribution is normal. As can be seen in table 2, all variables have a significance level greater than the test level of 0.05, so the null hypothesis is accepted and the distribution is normal. Due to the normality of statistical distributions, parametric statistics can be used to test research hypotheses.

Table 1. Descriptive statistics of research participants based on age, marital status, educational status, employment status, and type of drug used (n=150)

Demographics	N	%
Age		
18-25	26	17
26-36	42	28
37-46	56	37
>47	26	18
Marital status		
Single	63	42
Married	87	58
Illiterate	4	3
Education		
Primary-secondary	50	33
High school	64	43
Academic education	32	21
Employment status		
Employed	29	19
Student	26	17
Pensioner	35	23
Unemployed	60	41
Hashish	32	21
Grass	6	4
Flower	6	4
Type of drug used		
Opium	23	15
Heroin	26	17
Crack	11	8
Glass	29	19

As can be seen in table 2, all variables have a significance level greater than the test level of 0.05, so the null hypothesis is accepted and the distribution is normal. Due to the normality of statistical distributions, parametric statistics can be used to test research hypotheses and statistical inference models. In the present study, due to the normal distribution, the Pearson correlation coefficient has been used.

Table 3 shows the matrix of correlation coefficients between the research variables. The coefficients marked with two stars are significant at the level of 0.01. (Pvalue<0.01).

Table 4. correlation between variables

Variable	Mean	SD	Correlation coefficient	Level of significance
EMSs	2.43	0.51		
Distress tolerance	2.66	0.68	-0.285	0.00
EMSs	2.43	0.51		
Psychiatric symptoms	2.42	0.56	0.70	0.00
Distress tolerance	2.66	0.68		
Psychiatric symptoms	2.42	0.56	-0.299	0.00

Table 2. Kolmogorov–Smirnov test statistic

Variable	K-S test statistic	Level of significance
Distress tolerance	0.106	0.10
Psychiatric symptoms	0.055	0.08
Early maladaptive schemas	0.063	0.09
	0.07	0.91

As the results in table 3 show, there is a significant positive correlation between psychiatric symptoms and EMSs (0.701), as well as between distress tolerance and EMSs (-0.285), and psychiatric symptoms (-0.299).

Table 3. Correlation coefficient matrix of the studied variables

	EMSs	Psychiatric symptoms	Distress tolerance
EMSs	1	0.701	0.285-
Psychiatric symptoms	0.701	0.00	0.00
Distress tolerance	0.00	1	0.299-

Pearson correlation coefficient test was used to test the first hypothesis. As the results of table 4 show, the obtained correlation coefficient is -0.285 at a significant level less than 0.01. Therefore, with 99% confidence, it can be said that there is a significant negative relationship between the EMSs and distress tolerance among participants.

Pearson correlation coefficient test was used to test the second hypothesis. As the results of table 5 show, the correlation coefficient was 0.70, which is significant at a significant level less than 0.01. Therefore, it can be said with 99% confidence there is a significant positive relationship between the EMSs and the dimensions of psychiatric symptoms among addicts.

Pearson correlation coefficient test was used to test the third hypothesis. As the results of table 6 show, the resulting correlation coefficient is -0.299 at a significant level less than 0.00. Therefore, with 99% confidence, it can be said that there is a significant negative relationship between tolerance of confusion and psychiatric symptoms among addicts.

In general, several indicators are used to measure the fitness of the model. But usually, to confirm the model, the use of three to five indicators seems sufficient. In this study, to evaluate the goodness of fit of the model the indices indicated in table 5 were used.

According to the path analysis model (summary of path coefficients of structural equations) and the values of the table that have been collected, the standard coefficients of distress tolerance in the relationship between EMSs and psychiatric symptoms for addicts are CR=11.13. According to CR, this path (1.96<|CR|=11.13) and the significant level obtained (Pvalue<0.00) can be concluded with a 95% probability that zero hypothesis is rejected and the fourth hypothesis is confirmed. Distress tolerance in the relationship between EMSs and psychiatric symptoms among addicts in Zanjan plays a mediating role.

Table 5. Important fit indices of the drawing model

Indices	Optimal amount	Calculated value
df ² /χ	3<	2.78
Goodness of Fit Index (GFI)	0.90>	0.99
Adjusted Goodness of Fit Index (AGFI)	0.90>	0.98
Comparative Fit Index (AGFI)	0.90>	0.97
Root Mean Square Error of Approximation (RMSEA)	0.1<	0.01

Table 6. Summary of path coefficients of structural equations of variables

	(Formative- Reflective)Path	C.R. of Critical ratio	Pvalue
EMSs			
Psychiatric Symptoms	Tolerance to turbulence	11.13	0.00

Discussion

The results showed that there is a significant negative relationship between EMSs and distress tolerance among addicts in this study. The findings of this study confirm the theory of Young and the schema-based cognitive-behavioral therapy model. In this theory, it is assumed that behaviors such as addiction are created to reduce the negative emotions caused by the activity of EMSs. The results obtained in this study are consistent with the results of Rajabi et al., study. This research showed that there is a negative and significant relationship between EMSs and distress tolerance and EMSs were able to predict distress tolerance in students,¹⁷ so it can be said that people who have high scores in EMSs might have a lower distress tolerance. Also, the results of the study of Zargar et al., showed that in individuals addicted to drugs, the EMSs of abandonment, emotional deprivation, punishment, social isolation, and entitlement are the dominant schemas²⁸ were also consistent with the results of this study as the emotional deprivation; entitlement and grandiosity; failure to achieve; abandonment/instability; and mistrust/abuse were respectively the highest scores. Explaining the findings, it can be said that addicted people have unpleasant experiences in childhood and their main emotional needs are not met, and schemas are the result of traumatic experiences that were experienced during childhood or adolescence and are proven throughout a person's life. The existence of traumatic experiences in childhood leads to different types of perceptions and perspectives on events so that people will have different perceptions of a common and identical situation due to the existence of different interpretations. The type of our perceptions of events will determine how we react to events. People with EMSs have more negative perceptions of events than others, so they will react differently to the events and will probably have less distress tolerance for that event. The ability to tolerate distresses depends on our realistic interpretation of environmental events.

As the results showed, there was a positive and significant relationship between EMSs and psychiatric symptoms. The results of some studies have shown that mental disorders are more common in people with substance abuse compared to healthy people. These disorders mainly include anxiety and depression.^{12,13} In this study, addicted people with psychiatric symptoms of paranoid thoughts, interpersonal sensitivity, OCD, anxiety, and psychosis received the highest mean score,

respectively. Preoccupation with one or more delusions or having frequent delusions is characteristic of paranoid thoughts. Among the paranoid thoughts, we can mention delusions of biting and harm, self-aggrandizement, and jealousy which due to the use of hallucinogenic substances cause paranoid thoughts. Young stated that EMSs, at the deepest level of cognition, usually operate outside of consciousness, making people psychologically vulnerable and leading to depression, anxiety, dysfunctional relationships, and psychosomatic disorders. In schema therapy, EMSs are considered as the core and main goal of treating personality disorders and chronic behavioral problems.²⁹ Schemas are central beliefs formed through life experience; they are created and used to filter (separate) stimuli from the environment in order to interpret each situation. When early life experiences are negative, the person forms schemas that are in environments based on negative and neutral stimuli and then begins to filter through these schemas and negative interpretations. As a result of the tendency to the negative interpretations, individuals may be more prone to experience depressive symptoms.²⁹ Research has shown that EMSs are associated with different symptoms. For example, the perfectionism schema is associated with symptoms of anxiety and depression³⁰ and psychological incompatibility³¹ and eating disorders, psychosomatic symptoms, anxiety, depression.³²

Distress tolerance is a person's ability to experience and tolerate negative emotions.¹⁶ Evidence suggests that distress tolerance is associated with substance and alcohol use.¹⁹ Furthermore, the distress tolerance construct has been purported to contribute to the development and maintenance of several forms of psychopathology (e.g., substance use, anxiety, mood, and personality disorders). Distress tolerance construct can be as a putative risk or maintenance factor(s) among persons with, or at-risk for, various psychological disorders.³³⁻³⁵ In the study of substance use and dependence, as one example, intolerance of emotion and somatic sensations has been suggested as a key explanatory mechanism underlying maintenance of.^{36,37}

Finally, the results of our study indicated that distress tolerance can play a mediating role in the relationship between EMSs and psychiatric symptoms. According to Simmons and Gahar, people who cannot tolerate or manage and control this anxiety are more likely to have problems and evidence suggests that distress tolerance is associated with substance use and alcohol.^{15,19} People with low anxiety also engage in behavioral

disorders in a misguided attempt to cope with their negative emotions.³⁸ According to Khantzian's theory, many people become addicted due to low distress tolerance and emotion regulation, and in fact, drug addiction is a tool to reduce stress.¹⁶ This theory is in line with the results of the present study. Also, the results of the present study are in line with the results of the Marshall-Brenzovanovic and McPherson study,³⁹ which showed that tolerance of distress plays a mediating role in this regard, and these people turn to alcohol to relieve stress and psychological distress³⁰ and it was also consistent with the research of Leroy Zawalinski and Bernstein, which showed that people with high distress tolerance can tolerate negative psychological states while people with low distress tolerance tend to engage in compensatory behaviors.¹⁸ So that it can be said that distress tolerance in the field of EMSs has caused more psychiatric symptoms in addicts in Zanjan.

This study includes addicts living in Zanjan province and cannot be generalized to other communities and ethnic groups. Also, caution should be exercised in generalizing these results to women, as most of the participants were male. For this reason, it is better to study this study on women and other communities and ethnicities using longitudinal researches. The findings also show that early maladaptive schemas, which are formed mainly in early childhood, can have psychological and social consequences, such as addiction. Therefore, schema-based parenting education can lead to the formation of adaptive schemas and prevent further harm. Distress tolerance can also exacerbate the effects of EMSs and lead to addiction. According to this issue, it can be said that life skills training such as tolerating distress and emotional regulation is effective in increasing mental and social health.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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